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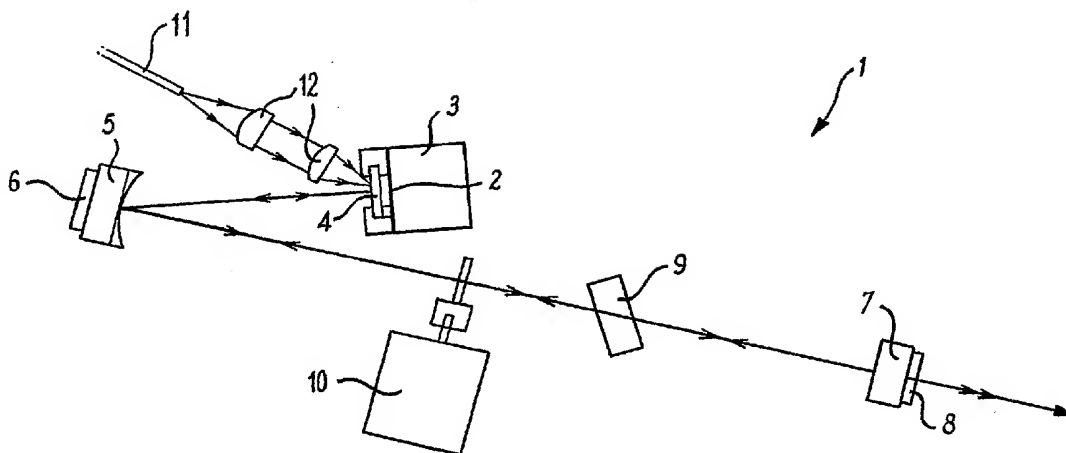
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(54) Title: IMPROVED VERTICAL EXTERNAL CAVITY SURFACE EMITTING LASER



(57) **Abstract:** An improved Vertical External Cavity Surface Emitting Laser (VECSEL) (1, 22, 27, 29) is described that exhibits improved frequency stability and tuning characteristics when compared with known devices. This is achieved through the employment of an intra cavity heatspreader (18) comprising single crystal diamond that is located with the gain medium (14) of the VECSEL (1, 22, 27, 29). As single crystal diamond exhibits good thermal conductivity and is non birefringent it acts as a good heatspreader (18) for the gain medium (14) while not interfering with the polarisation selection properties of any intra cavity birefringent filter (9). A further advantage of the heat spreader (18) being non birefringent is that an optimised anti reflection coating can also be applied to this component.

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